



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,770	03/26/2004	Patricia A. Morris	CL2218 US NA	9071
23906 7590 04/29/2009 E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1122B 4417 LANCASTER PIKE WILMINGTON, DE 19805				
EXAMINER RAMDHANE, BOBBY				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
04/29/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

Office Action Summary

Application No.

10/810,770

Applicant(s)

MORRIS ET AL.

Examiner

BOBBY RAMDHANIE

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-22, 25-27 and 29-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-22, 25-27 and 29-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/17/2009 has been entered.

Response to Arguments

2. Applicant's arguments, see remarks, filed 02/17/2009, with respect to the rejection(s) of claim(s) 20-21, 22, 25-27, & 29-41 under 102 & 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Morris (WO02/33393).

Response to Amendment

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 25-28, 34, 37, & 38-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding Claims 25, 27, 34, & 37-41, it is unclear how the method of using the device further limits the structure of device.
6. Regarding Claims 26, 28, 36 it is unclear how the components of the gas mixture further limits the structure of the device.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 20-22, 25-27, 29-33 & 35-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Morris (WO02/33393).
9. The applied reference has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.
10. Applicants’ claims are toward multiple devices.

11. Regarding Claims 20-22, 25-27, 29-33 & 35-41, Morris discloses the apparatus for analyzing a multi- component gas mixture, comprising:

12. A). An array of four or six or more chemo/electro-active materials (See Figure 1 and Page 11; lines 29-33), each chemo/electro-active material exhibiting a different electrical response characteristic, upon exposure at a selected temperature to the gas mixture, than each of the other chemo/electro-active materials; wherein at least four or six of the chemo/electro-active materials in the array comprise one of the following groups of four materials:

- 1). The group of chemo/electro-active materials comprising, respectively $\text{Ga}_a\text{Ti}_b\text{Zn}_c\text{O}_x$, $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, and SnO ,
- 2). The group of chemo/electro-active materials comprising, respectively $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, $\text{Sb}_a\text{Sn}_b\text{O}_x$, and ZnO ,
- 3). The group of chemo/electro-active materials comprising, respectively $\text{Ni}_a\text{Zn}_b\text{O}_x$, $\text{Sb}_a\text{Sn}_b\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, and ZnO ,
- 4). The group of chemo/electro-active materials comprising, respectively, $\text{Sb}_a\text{Sn}_b\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$, and ZnO ,
- 5). The group of chemo/electro-active materials comprising, respectively $\text{Al}_a\text{Ni}_b\text{O}_x$, $\text{Cr}_a\text{Ti}_b\text{O}_x$, $\text{Mn}_a\text{Ti}_b\text{O}_x$, $\text{Nb}_a\text{Ti}_b\text{Zn}_c\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$,
- 6). The group of chemo/electro-active materials comprising, respectively $\text{Ga}_a\text{Ti}_b\text{Zn}_c\text{O}_x$, $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Sb}_a\text{Sn}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$,
- 7). The group of chemo/electro-active materials comprising, respectively $\text{Ga}_a\text{Ti}_b\text{Zn}_c\text{O}_x$, $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, SnO_2 , $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$,
- 8). The group of chemo/electro-active materials comprising, respectively $\text{Nb}_a\text{Ti}_b\text{O}_x$, $\text{Ni}_a\text{Zn}_b\text{O}_x$, $\text{Sb}_a\text{Sn}_b\text{O}_x$, $\text{Ta}_a\text{Ti}_b\text{O}_x$, $\text{Ti}_a\text{Zn}_b\text{O}_x$, and ZnO

wherein a, b, and c are each independently about 0.0005 to about: 1: and

wherein x is a number sufficient so that the oxygen present: balances the

charges of the other elements in the chemo/electro-active material (See Page 14 line 32 to Page 17 line 37; the chemo/electro-active materials are listed);

B) Means for determining an individual electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture (See Page 4 lines 26-28 & Page 29; IR Thermographic Measurements & Claim 1); and

C). Means for obtaining from no information about the gas mixture other than the individual electrical response of the chemo/electro-active (See Page 4 lines 29-36 Items C or D & Page 29; IR Thermographic Measurements & Claim 1).

13. Additional Disclosures Included: Claim 22: Wherein a chemo/electro-active material further comprises a frit additive (See Page 18 lines 12-14); Claim 25: An apparatus according to Claim 20 or 21 that determines the presence or concentration of a nitrogen oxide and a hydrocarbon in the multi-component gas mixture (See Page 20 line 27); Claim 26: An apparatus according to Claim 20 or 21 wherein the component gases in the gas mixture are not separated (See Page 20 lines 19-22); Claim 27: An apparatus according to Claim 20 or 21 wherein the electrical responses of the chemo/electro-active materials are determined upon exposure to only the multi-component gas mixture (See Page 45 lines 1-4); Claim 29: An apparatus according to Claim 20 or 21 wherein the multi-component gas mixture is emitted by a process, or is a product of a chemical reaction that is transmitted to a device, and wherein the apparatus further comprises means for utilizing the electrical responses for controlling the process or operation of the device (See Page 11 lines 9-24); Claim 30: A vehicle for transportation comprising an apparatus according to Claim 20 or 21 (See Page 11 lines

9-24); Claim 31: Equipment for construction, maintenance or industrial operations comprising an apparatus according to Claim 20 or 21 (See Page 11 lines 9-24); Claim 32: An apparatus according to Claim 20 or 21 further comprising heating means for separately heating each chemo/electro-active material (See Page 22 lines 24-28); Claim 33: An apparatus according to Claim 20 or 21 wherein each chemo/electro-active material is heated to the same temperature (See Page 22 lines 24-28); Claim 35: An apparatus according to Claim 20 or 21 wherein the chemo/electro-active materials are on a substrate made from a material selected from the group consisting of silicon, silicon carbide, silicon nitride, and alumina with a resistive dopant (See Page 14; lines 20-25); Claim 36: An apparatus according to Claim 20 or 21 wherein the gas mixture comprises an organo-phosphorus gas (See Rejections to claim 1; the device is capable of being used in this manner); Claim 37: An apparatus according to Claim 20 or 21 which may be held in the human hand (See Page 27, Array Chip Fabrication); Claim 38: An apparatus according to Claim 20 or 21 which is located in the ventilation system of a building or car (See Page 11 lines 9-14); Claim 39: An apparatus according to Claim 20 or 21 that determines the presence or concentration of a nitrogen oxide in the multi-component gas mixture (See above rejection to nitrogen oxide and rejections to Claim 38); Claim 40: An apparatus according to Claim 20 or 21 that determines the presence or concentration of a hydrocarbon in the multi-component gas mixture (See Page 12 line 25); and Claim 41: An apparatus according to Claim 20 or 21 that determines the presence or concentration of ammonia in the multi-component gas mixture (See Page 12 line 25).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris in view of Clifford.

17. Applicant's claim is toward a device.

18. Regarding Claim 34, Morris discloses the apparatus according to Claim 20 or 21, except wherein one or more chemo/electro-active materials is heated to a different temperature than the other chemo/electro-active materials. Clifford discloses a gas sensor array in which separate heaters may be employed (See Column 9 lines 14-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the heater of Morris with the separate heaters for one or more chem/electro-active materials because according to Clifford, individual sensors may

share a common heating means, or if different sensor operating temperatures are desired, heating means may be separate (See Column 9 lines 14-22).

Telephonic Inquiries

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBBY RAMDHANIE whose telephone number is (571)270-3240. The examiner can normally be reached on Mon-Fri 8-5 (Alt Fri off).

20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

21. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Walter D. Griffin/
Supervisory Patent Examiner,
Art Unit 1797

/B. R./
Examiner, Art Unit 1797